ANNUAL REPORT

for the fiscal year
ending March 31, 1989

Department of Agriculture and Marketing

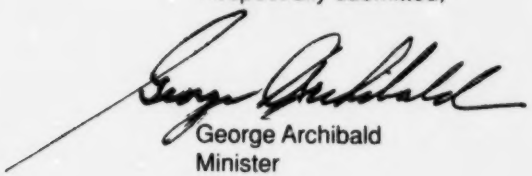
90-05813/

His Honour,
The Honourable Lloyd R. Crouse, P.C.
Lieutenant-Governor of Nova Scotia

May It Please Your Honour:

I have the honour to submit the Annual Report of the Department of Agriculture and Marketing for the fiscal year ending March 31, 1989.

Respectfully submitted,



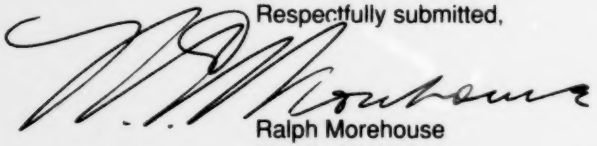
George Archibald
Minister

The Honourable George Archibald
Minister of Agriculture and Marketing
Province of Nova Scotia
Halifax, Nova Scotia

Dear Sir:

I have the honour of presenting the Annual Report of the Department of Agriculture and Marketing for the fiscal year ending March 31, 1989.

Respectfully submitted,



Ralph Morehouse
Deputy Minister

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ORGANIZATIONAL CHART
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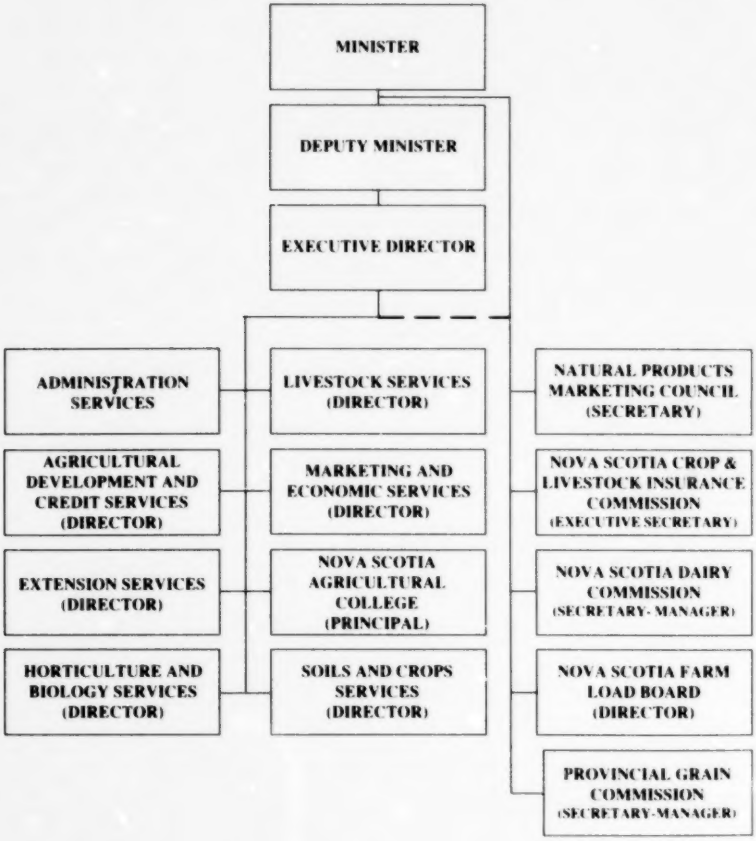
DEPARTMENT OF AGRICULTURE AND MARKETING


MINISTER
DEPUTY MINISTER
EXECUTIVE DIRECTOR
ADMINISTRATION SERVICES
AGRICULTURAL DEVELOPMENT AND CREDIT SERVICES (DIRECTOR)
EXTENSION SERVICES (DIRECTOR)
HORTICULTURE AND BIOLOGY SERVICES (DIRECTOR)
LIVESTOCK SERVICES (DIRECTOR)
MARKETING AND ECONOMIC SERVICES (DIRECTOR)
NOVA SCOTIA AGRICULTURAL COLLEGE (PRINCIPAL)
SOILS AND CROPS SERVICES (DIRECTOR)
NATURAL PRODUCTS MARKETING COUNCIL (SECRETARY)
NOVA SCOTIA CROP & LIVESTOCK INSURANCE COMMISSION (EXECUTIVE SECRETARY)
NOVA SCOTIA DAIRY COMMISSION (SECRETARY-MANAGER)
NOVA SCOTIA FARM LOAD BOARD (DIRECTOR)
PROVINCIAL GRAIN COMMISSION (SECRETARY-MANAGER)

NOVA SCOTIA AGRICULTURAL COLLEGE

OVERVIEW

Student enrollment remained stable in 1988-89, and estimates for 1989-90 indicate similar enrollment numbers. Enrollments increased in the diploma programs largely as a result of increasing the intake of students in Landscape Horticulture from 10 to 20 and introducing the new Animal Health Technology (AHT) Program. An advisory committee was formed to assist the College in refining the content of its AHT Program, which accepted its first students in September 1988. The program is designed to provide training for employment either as an assistant to a veterinarian in private practice or regulatory work or as an animal care assistant in research or similar activities involving the use of laboratory animal species. The advisory committee represented these end-user groups. The new AHT Program will take advantage of many of the resources on campus and especially those in the Animal Science Department. A major new resource of special relevance to this program is the new Laboratory Animal Centre located in the Boulden Building, which is currently under renovation. This facility will also be used extensively by faculty for research involving laboratory animal species.

College involvement in international development programs continues. The International Potato Production Technology Course continues to operate successfully. Development projects are on-going with the College of Agriculture in Jamaica, the School of Agriculture at Francisco de Paula Santander in Colombia, the Gambia College of Agriculture, and Hunan Agricultural College in China.

Research activity continues to expand, and funding from all sources is now in excess of $1.5 million.

COURSES OFFERED

Degree

A complete four-year course leading to a degree in Agricultural Sciences [B.Sc. (Agr.)] is offered with a choice of the following options:

- Agricultural Chemistry
- Agricultural Economics
- Agricultural Mechanization
- Agricultural Soils
- Animal Science
- Plant Protection
- Plant Science

Students can take other options without interruption by transferring to the third year of the B.Sc.(Agr.) program at Macdonald College of McGill University, the University of Guelph, the University of Maine, or the faculty of agriculture at another university.

Students who successfully complete the three years of the Agricultural Engineering diploma program can proceed to Macdonald College of McGill University or the University of Guelph to complete their program of study. A two-year engineering program is built into the three-year program for students proceeding to the Technical University of Nova Scotia.

Students who wish to take the three-year Pre-Veterinary Program to meet admission requirements of the Atlantic Veterinary College at the University of Prince Edward Island must, after completing the first year, enter the Animal Science option and take a specific selection of subjects. The Pre-Vet Program also serves as the first three years of the B.Sc.(Agr.) program, Animal Science option.

Technician

The following two-year programs of study are offered:

- Agricultural Business
- Agricultural Engineering
- Animal Science
- Farm Equipment
- Plant Science

Technology

The following two-year programs of study are offered:

- Biology Laboratory Technology
- Chemistry Laboratory Technology
- Landscape Horticulture Technology

The following two-year programs are offered only to students who have successfully completed one year of a specified technician course, or equivalent:

- Agricultural Engineering Technology
- Farming Technology

Students in the Farming Technology Course spend 11 months, including summers, of their coursework on farms. Seven of those months consist of structured training under a farmer/instructor.

Agricultural Technology is a one-year program, tailored to meet the needs of the student. Only Technician graduates are eligible to apply for this course.

A three-year Animal Health Technology Program includes a seven-month internship requirement.

REGISTRATION 1988-89

1st-year B.Sc. (Agr.)	77	
2nd-year B.Sc. (Agr.)	73	
3rd-year B.Sc. (Agr.)	67	
4th-year B.Sc. (Agr.)	65	
Subtotal B.Sc. (Agr.)		282
1st-year Engineering	10	
2nd-year Engineering	4	
Subtotal Engineering		14
1st-year Technicians	51	
2nd-year Technicians	58	
Subtotal Technicians		109
1st year Technology	44	
2nd-year Technology	28	
Subtotal Technology		72
Special Students*		60
Total full-time students		537

* Students not in a regular program leading to a degree or diploma.

VOCATIONAL AND CONTINUING EDUCATION PROGRAMS

Vocational courses have been designed to assist men and women enter or progress in farm or farm-related careers. Forty-nine courses were held with 718 persons enrolled, totalling 8,804 student training days.

The Canada Employment and Immigration Commission sponsored 236 persons by paying their tuition and, on courses over 10 days' duration, a training allowance. Details on enrollment can be seen in the following tables:

Province	Number of Students			% of Total Students		
	1988-89	1987-88	1986-87	1988-89	1987-88	1986-87
Nova Scotia	489	533	436	68.1	75.3	74.5
New Brunswick	98	75	72	13.6	10.5	12.3
Prince Edward Island	65	58	46	9.1	8.2	7.8
Newfoundland	50	29	24	7.0	4.1	4.1
Other residents	16	13	7	2.2	1.9	1.1
Total number enrolled	718	708	585			
Total number graduated	684	658	439			
Total number sponsored by CEIC	236	276	232			
Total student training days	8,804	10,136	9,832			

RESEARCH PROJECTS

Research projects were funded from a number of sources. Some of these were at the discretion of the Research and Innovative Demonstration Committee, while others were the result of individual initiative. A number of investigative projects are not included. The fund sources are as follows and may or may not be included in these statistics.

Source	Funds
N.S. Dept. of Agriculture & Marketing	215,291
Natural Sciences and Engineering Research Council (NSERC)	192,443
Atlantic Livestock Feed Initiative (ALFI)	453,086
Canada-Nova Scotia Agri-Food Development Agreement (AFDA)	17,620
Government and industry grants	140,974
Government and industry contracts	278,018
Agricultural Research Institute (ARI) contracts	92,981
Total all sources	$1,390,413

COLLEGE FARM

The College Farm provides teaching, research, and demonstration facilities and materials for all departments within the College, particularly the Animal Science Department. There has been a continued increase in the number of research and student projects carried out on the farm. Due to the greater need for expanded facilities, a Farm Planning Committee has been appointed to plan the future livestock and crop facilities at the College.

Crops

The 1988 cropping season was blessed with good planting and harvesting weather, resulting in excellent quality forage being stored and fed.

The cropping program for 1988 was as follows:

Crop	Hectares	Crop	Hectares
Research plots	5	Improved pasture	21
Annual ryegrass	8	Cultivated pasture	25
Legume forage	39	Barley	20
Grass forage	42	New seeded legumes	24
Corn silage	10	Woods	13
		Total	207

Livestock

All the various classes of livestock and poultry have been used in research and/or student projects during the past year. Changes in livestock numbers with year end inventories were:

	April 1/88 Begin	Born Alive	Purchased	Leased	Sold	Died	March 31/89 End
Beef cattle*	146	92	1	52	113	11	167
Dairy cattle	102	50	10	—	53	2	98
Sheep**	180	195	73	59	262	19	226
Swine	382	1,042	15	—	742	257	440
Foxes	150	195	6	—	156	76	136
Mink	91	266	9	—	219	50	96
Horses	4	0	0	—	0	0	4
Poultry	7,316	1,672	9,916	—	13,003	1,100	4,785

* 52 are on lease from the Nappan Experimental Farm.
** 59 are on lease from the Nappan Experimental Farm.

Beef Cattle

In April 1988, the Nappan Experimental Farm leased 52 bred cows to the Nova Scotia Agricultural College Farm. One-half of these cows calved in June and the remainder in October, adding significantly to our calf crop. Shorthorn and Simmental bulls are presently being used in the breeding program.

Swine

The swine unit had 107 litters born during the year, with an average of 2.29 litters per sow. The herd averaged 9.7 piglets born alive and 7.7 weaned per litter.

A total of 739 pigs were marketed during the year with an index of 100.2. The College Farm continued to cooperate with the Nappan Experimental Farm with joint research projects, and the majority of the market hogs were placed on research projects at Nappan.

Sheep

A research group of 59 ewes was leased from the Nappan Experimental Farm with the majority of them lambing in September and October. These fall lambs provided excellent stock for teaching and student projects during the fall and winter semesters.

Poultry

Little change took place in the poultry unit during the year. Approximately 2,400 layers and three broiler flocks were raised.

Dairy Cattle

The size of the dairy herd decreased slightly as the production continued to increase. The Ayrshire herd breed class average increased from 162 per cent to 175 per cent for milk and 164 per cent to 173 per cent for butterfat. The Holstein herd increased from 165 per cent to 182 per cent for milk and from 174 per cent to 185 per cent for butterfat. Much of this can be directly attributed to the improvement in the quality of forage available to the animals.

Fur

A new Fur Unit Building will be completed in the spring of 1989. This building provides office and laboratory space in addition to a metabolism room, chinchilla room, and a feed kitchen, along with a cooler and freezer. These facilities will be used to prepare fresh, wet diets for mink and fox research.

LIVESTOCK SERVICES BRANCH

OVERVIEW

The Livestock Services Branch serves the livestock industry in four general areas: providing advisory services in breeding and management of all classes of livestock; providing a rapid and accurate diagnostic service to practising veterinarians and farmers; administering regulations pertaining to the production, inspection, distribution, and sale of milk and milk products; and providing the inspection services at provincially approved red meat abattoirs.

The beef industry experienced lower prices for feeder cattle compared to 1987. Prices at the Truro Feeder Sales were less than in 1989 but higher than the 1986 average. Quality continues to improve.

The sheep industry experienced strong prices again in 1988. There was good demand for lambs. Sale prices of purebred animals were lower than in 1987 and generally equal to 1986 prices.

The swine industry sold 9,727 fewer market hogs in 1988 at 19.6 per cent lower average value than in 1987. Fourteen fewer hog producers were registered under the Provincial Stabilization Plan than in 1987. Nova Scotia continues to lead Canada in the quality of hogs marketed.

The dairy sector remains the largest single segment of the livestock industry. Milk marketed from fluid shippers increased by 1.3 per cent during 1988. Average herd size remained at 52 cows. Twenty-one producers left the industry in 1988, and there were six new entrants.

Two programs, Record of Performance (R.O.P.) and the Dairy Herd Analysis Service (D.H.A.S.), were amalgamated and privatized on October 1, 1988. One hundred and seventy-four herds were active under the combined milk recording programs at December 31, 1988. Production per cow increased 3.2 per cent on 8,734 cows enrolled on milk recording.

Nova Scotia's poultry industry enjoyed some expansion in 1988. Turkey producers experienced the largest increase in quota allotment.

The veterinary staff and laboratory facilities support all aspects of animal agriculture and, as well, provide diagnostic service to the Department of Lands and Forests. Laboratory submissions increased by 6.6 per cent over 1987. Laboratory diagnostic service is also provided for companion animals on a fee-for-service basis.

The Livestock Health Services Program assists 46 veterinarians in 20 clinics throughout Nova Scotia. New initiatives in veterinary extension were provided during 1988.

The fur sector experienced discouragingly low prices for pelts produced in 1988 and during early 1989. There are 170 licensed mink producers in Nova Scotia who ranch 77,000 breeder females; 75 per cent of these are in Digby County.

Nova Scotia is now the largest producer of ranched fox pelts in Canada. Two hundred and sixty-five registered ranchers produced 23,700 pelts in 1988, and approximately 2,000 live animals were exported to China. Fox pelt prices in early 1989 were down in the $70-$75 range, compared to the $127 average experienced in early 1988. The average number of females kept per ranch is 26, although some ranches exceed 300 breeder females.

There were 17 licensed chinchilla ranchers in 1988.

BEEF

Production

The following table outlines the total cattle population estimates for January 1989, with previous estimates for comparison purposes.

Nova Scotia Cattle ('000)

	Jan. 1989	Jan. 1988	Jan. 1987	Jan. 1986	Jan. 1985
Bulls	1.8	1.9	1.8	1.7	1.7
Milk cows	33.3	33.3	35.6	35.4	36.3
Beef cows	22.5	22.5	26.7	26.6	26.3
Milk heifers	15.2	15.3	14.9	15.0	15.2
Beef heifers—replacement	5.5	5.5	7.2	7.1	7.1
Beef heifers—slaughter	4.5	4.5	3.8	3.7	3.6
Steers over one year	7.0	7.0	11.0	10.5	10.2
Calves under one year	30.2	30.0	34.0	36.0	36.6
TOTAL	120.0	120.0	135.0	136.0	137.0

Prices

Slaughter cattle prices decreased slightly in 1988. A1, A2 steers averaged $75.60/cwt at the Truro Sale, compared to $77.08/cwt in 1987.

During the same period D1, D2 cows sold at $56.44/cwt, compared to $55.61/cwt in 1987.

In 1988, two feeder cattle sales were held in Truro. The overall average for both sales on the 1,978 cattle was 88.56¢/lb., which was 8.50¢ lower than in 1987.

Average Price —Truro Feeder Sale

1988	1987	1986	1985	1984	1983	1982
$88.56	$97.02	$79.08	$74.58	$76.34	$72.05	$67.10

Choice and good steer calves averaged 102.96¢/lb., compared to 113.06¢/lb. in 1987. Quality was extremely high at both sales. The sales returned a total of $979,875 for the 1,106,396 lb. of feeders sold.

Improved Sire Policy

Assistance was paid on the purchase of bulls during the year as follows:

	1988	1987	1986	1985	1984
Purebred herd sires	42	23	31	29	38
Commercial herd sires	198	187	156	191	167
Total assistance paid	$89,400	$76,200	$71,800	$79,500	$74,600
Value of bulls	$377,536	$281,235	$250,593	$300,227	$277,920

All bulls must be performance tested, either at home or at the Maritime Beef Cattle Test Station, and must meet minimum standards for rate of gain and yearling weight. This policy has helped to reduce time spent on selection and inspection of bulls and has helped to educate producers in the use of performance records and their application to practical breeding programs.

Beef Herd Improvement Policy

The purpose of this program is to improve and develop beef cow herds in Nova Scotia and to provide some economic stability to the beef cow-calf sector of the industry.

	1988	1987	1986
Number of applications	503	482	508
Number of animals paid on —total number	3,695	3,557	3,826
Average per application	7.34	7.38	7.53
Amount of money paid out —total amount	$591,200	$569,120	$612,160
Average per application	$1,175	$1,181	$1,205

Performance Testing

We continue to participate in the federal-provincial Record of Performance (R.O.P.) Beef Program. This program is designed to assist breeders in selecting replacement heifers and herd sires on the basis of rate of gain. It is a very valuable aid in a selection program. During the fall of 1988, 205 herds were enrolled in home test, an increase of 5 from 1987.

In addition, the Maritime Beef Cattle Test Station continued to operate on a year-round basis at Nappan. Since 1966, 3,137 bulls have been tested at Nappan.

During 1988, 226 bulls were tested at Nappan. About 51 per cent of all bulls tested were from Nova Scotia.

The test station at Nappan also offers excellent facilities for the Annual Bull Sale held in April of each year.

Community Pastures

Livestock numbers increased on the Cape John Pasture during 1988, with some decrease on the Cape Mabou Pasture.

The Cape John Pasture had 667 head of cattle and 187 sheep and lambs entered. The cattle did well on pasture with an average daily gain of 1.62 lb. No disease or management problems were encountered. In general, patrons were satisfied with livestock performance on the Cape John Pasture in 1988.

The Cape Mabou Pasture had 545 head of cattle pastured. Cattle performance was excellent with an average daily gain of 1.90 lb./day reported.

The Minudie Pasture did not operate in 1988.

The five co-operative pastures located at L'Ardoise, Cheticamp, Glendale, Manchester, and Digby were operated under the management of the local co-operatives.

SHEEP

Production

The sheep industry was highlighted in 1988 by strong prices and a strong demand for lambs in all markets.

Northumberlamb Marketing Co-op was successful in 1988, marketing 4,000 lambs. There were 24,000 sheep in Nova Scotia as recorded by Statistics Canada on January 1, 1988, a decrease of 2,000 from the previous year.

The Home Test Record of Performance Program provides a mechanism for measuring the performance of animals within the flock. The annual report showed 50 flocks with 5,000 lambs tested. Nova Scotia had the third highest number of lambs on test in 1988.

Price

Lamb and mutton prices at the Maritime Cattle Market were strong in 1988. The volume offered through the market was approximately 5,177 lambs. The average price was 90.5¢/lb., according to the Market Report.

Predator Control

A compensation program administered by the Department of Lands and Forests paid compensation to sheep producers on 1,016 sheep and lambs killed by coyotes.

The Annual Breeding Stock Sale, sponsored by the Purebred Sheep Breeders Association of Nova Scotia, sold 117 head for a gross of $15,005. Animals sold were ewe lambs, yearlings, two-year-olds, mature ewes, and selected R.O.P.-tested rams.

	1988		1987		1986		1985	
	No.	Average	No.	Average	No.	Average	No.	Average
Ewe lambs	54	$ 93.70	35	$145.20	18	$ 93.60	13	$110.75
Yearlings	36	$112.36	13	$178.33	18	$124.33	15	$148.50
Two-year-olds	—	$ —	—	$ —	6	$149.50	8	$ 87.00
Rams	16	$291.88	27	$251.87	16	$229.50	24	$200.00
Mature ewes	11	$111.82	19	$164.75	57	$ 87.40	—	$ —

Assistance Policies

The Livestock Services Branch supervised three sheep policies in 1988. They were the Improved Sire Policy, the Sheep Production Policy, and the Sheep Pasture Improvement Policy.

Improved Sire Policy (January 1, 1988-December 31, 1988)

Total number of rams bonused—29

Suffolk—5	Clun Forest—1
Dorset—4	Leicester—1
North Country Cheviot—6	Romney—1

Total assistance—$1,758.00

Sheep Production Policy (January 1, 1988 -December 31, 1988)

Number of yearlings bonused—1,401
Number of producers—49

Total assistance—$33,013.00

Sheep Pasture Improvement Policy (January 1, 1988-December 31, 1988)

Approximate number of acres fenced—197
Land cleared (acres)—20
Number of producers—19

Total assistance—$14,185.42

SWINE

Production

A total of 233,390 hogs were marketed through the Pork Producers Marketing Board of Nova Scotia. This was an increase of 9,727 hogs, or 4.3 per cent, compared to 1987. The average value per hog marketed was $129.71, down 19.6 per cent from 1987. The average weekly price for 100 index hogs for 1988 was $70.84/cwt. The gross value of these hogs was $30,272,222.

Pork Quality

The following is a comparison of how Nova Scotia indexed in relation to the Canadian average in 1988.

		1988	1987	1985	1983
Index 102+	Canada	51.1	59.2	74.3	79.8
	Nova Scotia	65.7	78.9	80.7	81.1
Index 105+	Canada	23.3	40.3	43.8	39.4
	Nova Scotia	48.5	55.9	52.4	51.8
Index 108+	Canada	15.6	12.8	14.5	12.3
	Nova Scotia	17.2	24.3	17.3	17.7

Nova Scotia producers continue to lead the other provinces in Canada in the quality of hogs marketed.

Record of Performance Testing

There continued to be strong support for both home and station testing of swine in 1988. There were 1,215 boars and 3,142 gilts tested on the home testing program in 1988; an increase in both boars and gilts, compared to 1987.

Swine Herd Health Program

There are 91 pork producers enrolled in the Swine Herd Health Program, utilizing the services of eight local veterinarians. This program has improved the overall management and health situations in our swine herds. It is of even greater importance during periods of low pork prices when top performance is necessary.

Improved Sire for Swine

The high quality of hogs marketed in Nova Scotia is in a large measure due to the continued use of the best performance-tested boars available. Assistance was paid on a total of 292 boars. Landrace accounted for 98, Yorkshire for 66; Hampshire for 30; Duroc for 57; and crossbred for 41.

Nova Scotia Pork Price Stabilization Program

A total of 165 pork producers are enrolled in this program, representing over 99 per cent of total production. This program has been very valuable in maintaining our industry throughout the continued low price periods in recent years.

Without this program, many producers would have found it very difficult to survive present economic conditions.

Swine Breeding Stock Sales

There was a continued high demand for swine breeding stock in 1988. The value of animals sold through the Nova Scotia Swine Breeding Stock Sales Society in 1988 amounted to $102,800, compared to $74,000 in 1987.

Producer Organizations

The branch continued to work closely with both the Pork Producers Association of Nova Scotia and the Pork Producers Marketing Board of Nova Scotia. This close liaison is very important in developing programs and policies. The cost-of-production study committees considering supply management and the stabilization programs are two areas of cooperation.

GOATS

During 1988, a number of shows were held, sponsored by the Goat Association. There has been increasing interest in goats for milk production during the past year with the development of a commercial goat dairy in Elmsdale. A number of 4-H Clubs in the province had dairy goat projects.

POULTRY

Production

The Nova Scotia poultry industry is broken down into five economic production divisions. They are:

- Egg production
- Pullet production
- Broilers
  - Cornish chicken
  - Light
  - Regular
  - Roasting
- Turkeys
  - Broilers
  - Hens
  - Toms
- Hatchery

In Nova Scotia, there are five registered hatcheries; the egg segment has 42 registered producers, who produced 17 million dozen eggs in 1988; and the 18 commercial pullet producers had a total quota of 697,900 pullets.

Nova Scotia's registered chicken producers grew approximately 19.2 million kg (42 million lb. eviscerated weight) of chicken. Seventeen registered turkey producers placed 788,000 poults and produced 3.8 million kg (8.36 million lb. liveweight) of turkey. The 1988 turkey production represented a 7.5 per cent increase over 1987.

Blood Testing Program

The branch continued an extensive blood testing and vaccination program for exhibition birds. In 1988, there were over 3,500 birds in the 4-H Poultry Project. The unbanded exhibition birds will continue to be tested for Pullorum.

There were two outbreaks of I.L.T. in 1988.

DAIRY

Production

Milk production for the year from fluid producers was 174,749,666 L (396,506,992 lb.), an increase of 1.3 per cent over the previous year.

The number of dairy cattle on farms shipping fluid milk in 1988 was 29,090, for an average herd size of 52 cows.

As of December 31, 1988, there were 25 industrial milk producers with an average of 22 cows per herd.

The number of fluid producers recorded on January 1, 1988, was 579. Twenty-one producers left the industry and 6 entered, leaving a net figure of 564 fluid producers at year-end.

Industrial producers on January 1, 1988, numbered 22. Four transferred to fluid production in August, while seven cream producers graduated to the industrial level. As of December 31, 1988, there were 25 industrial shippers.

Dairy Cattle Sales

Prices for fresh cows and heifers was steady in early 1988, but prices increased sharply toward year's end.

Dairy Cows on Farms

	Jan. 1/89	Jan. 1/88	Jan. 1/87
Cows for milk	29,000	29,000	30,000
Replacement heifers	12,000	11,500	12,500
TOTAL	41,000	40,500	42,500

Dairy Herd Analysis Service

As of December 31, 1988, there were 174 herds on the Owner-Sampler Dairy Herd Analysis Service Program. These herds represented 8,734 cows, a slight increase over the previous year.

As of December 31, 1988, the 156 herds that had completed at least 12 months on the program had a rolling herd average of 6,744 kg (15,302 lb.) of milk with a 3.54 per cent butterfat test and a protein test of 3.16 per cent. Production per cow increased by 209 kg (460 lb.), or 3.2 per cent compared to the previous year. This average is the highest in the history of the Nova Scotia program.

Milk Recording

The new Atlantic Dairy Livestock Improvement Corporation (ADLIC) assumed responsibility for milk recording activities in the Maritimes on October 1, 1988.

All herds formerly enrolled on R.O.P. will be transferred to the Dairy Herd Analysis Service computer program in early 1989.

FUR FARMING

The fur sector continued to make a large contribution to the agricultural community in Nova Scotia. The total pelt crop for 1988 continued to expand, but prices received were down from the previous selling season. Darks averaged $34 for the 1988 crop, down 28 per cent from the previous year. There was not a 100 per cent clearance at the auction house.

Fox prices were down from the 1987 crop. Sales were a major disappoint-

ment with only an 85 per cent clearance of silver pelts and little interest in mutations. The average pelt price was less than $75, down from the $127 average the previous year.

Mink Ranching

Mink ranching continues to be the largest section of fur farming in Nova Scotia. There were 170 licensed producers within the province, keeping in excess of 77,000 breeder females. Digby County continues to be the stronghold of the mink industry, keeping 75 per cent of the total females in the province.

The total mink kit production in Nova Scotia is approximately 289,000, which is the second highest total in Canada. Ninety per cent of Nova Scotia's mink production is dark mink.

The main auctions held in Canada were at Hudson's Bay Company, Toronto, in January and February 1989, with some pelts going to the Seattle Fur Exchange.

The overall pelt average at Canada Mink Breeder-sponsored sales to date for 1988 production is $31.63. This price is $13 per pelt below the 1987 price.

The farm gross in the 1988-89 pelting season amounted to approximately $9,778,000. There were no large exports of breeder mink in 1988.

Fox Ranching

Fox pelt production continues to expand in Nova Scotia, now making this province the largest producer of foxes in Canada. The average number of females kept per ranch is 26; the largest ranch kept in excess of 300 females. Approximately 23,700 pelts were produced generating approximately $1.6 million in gross farm receipts. There was also a shipment of 2,000 breeders to China.

Silver fox continues to be the predominant fox raised in Nova Scotia. The other types raised are pearl platinum and platinum. There are a few ranchers importing breeding stock from outside Canada to try to improve pelt quality.

Since its establishment in 1984, the Nova Scotia Fur Institute has been very active in both research and extension. During 1988, feed trials, behavior

studies, and artificial insemination research were carried out by staff of the Animal Science Department of the Nova Scotia Agricultural College, in cooperation with the Fur Section of the Livestock Branch.

Chinchilla Ranching

This sector of the fur industry is a small one with only 17 licensed producers. However, it continues to expand and pelt returns are very good.

VETERINARY SERVICES

The Veterinary Services Division has responsibilities in the following areas:

- Extensive collaboration in disease control with the Food Production and Inspection Branch of Agriculture Canada;
- Administration of the Livestock Health Services Program, under the Livestock Health Services Act, which provides for the delivery of a uniform-cost veterinary service to livestock owners in 17 designated veterinary practice zones;
- Administration of the Provincial Meat Inspection Program under the Meat Inspection (N.S.) Act;
- Provision of a veterinary diagnostic service by the operation of an animal pathology laboratory, which processes and reports on specimens from all species of animals for livestock producers and owners of companion animals and for their veterinarians;
- Administration of the Swine Herd Health program, which is active in 10 counties within the province of Nova Scotia, through seven veterinary practice centres;
- Administration of the Cattle Herd Health Assistance Policy, which is available throughout Nova Scotia, with service provided through 17 veterinary practice centres;
- Collaboration with, and often working in conjunction with, other sections of the Livestock Services Branch, other branches of the department, and other departments of government.

Livestock Health Services Program

This program is carried out under the Livestock Health Services Act. Nineteen veterinary practices, working under agreements with 20 livestock health services boards, provided a uniform-cost, affordable veterinary service to livestock owners. The number of veterinarians involved with large animal practice is approximately 46. Over the past year the number of veterinarians involved with this program has increased slightly. The number of services provided, kilometres (miles) driven, and payments to Livestock Health Services Boards are shown for the years 1985-88, inclusive:

Year	Number clinic calls (*)	Number farm calls (*)	Miles driven	Kilometres driven	Payment to boards (**)
1988	1,471	27,012	643,414	1,035,253	$1,200,740
1987	1,467	26,665	616,846	992,505	$1,304,000
1986	1,555	27,909	651,354	1,048,028	$1,302,000
1985	1,751	27,633	650,198	1,046,169	$1,190,000

* Data from monthly statements that are submitted to the boards for payment.

** Payments to veterinary practices are less than funds paid to boards for 1985-87 inclusive.

Swine Herd Health Program

The Swine Herd Health Program provided a veterinary consultant to promote uniformity in program services to enrolled swine herds in the last half of 1988. There are approximately 85 herds enrolled, with participation fluctuating due to economic conditions in the pork sector. The Department of Agriculture and Marketing pays the basic call fee and cost-shares one-third of the first hour of the veterinarian's hourly rate. Enrollees are entitled to receive one visit per month.

Cattle Herd Health Assistance Policy

In 1988, this program completed its second year of operation. There are 542 dairy herds and 331 beef herds enrolled in this program. Approximately 5 per cent of the dairy herds and 40 per cent of the beef herds are entitled to four visits per year, while dairy herds are entitled to one visit every four weeks (i.e., 13 visits per year). The program pays the basic call fee and cost-shares one-third of the veterinarian's hourly charge.

Meat Inspection Program

In 1988, 11 abattoirs were enrolled in this voluntary program. The total number of animals slaughtered under provincial inspection was 22,177, or 10.7 units per inspection day. Regulations have been drafted to include meat processing facilities. To complement a program to encourage beef production on Cape Breton Island, the grading of beef carcasses is being accommodated under this program.

Veterinary Pathology Laboratory

The number of submissions has stabilized in recent years. However, in 1988 the number of submissions increased by 6.6 per cent. The largest number of specimens (138,074) originated from the Aleutian Disease Test Program. Approximately 50 per cent of the total submissions generated income and were as a result of services provided for companion animals. A contract was initiated with the Atlantic Veterinary College in 1988 for the provision of a virology diagnostic service.

MARKETING AND ECONOMICS BRANCH

OVERVIEW

The Marketing and Economics Branch provides leadership and assistance in the marketing of Nova Scotia agri-food products. Through consultation and liaison with all levels of the marketing system, programming has been developed in the areas of market analysis and research, administration of government policies and regulations, product development and promotion, market development, and education and audio-visual services.

Marketing Boards

The following commodity marketing boards operate in the province under the general supervision of the Natural Products Marketing Council:

- Nova Scotia Wool Marketing Board, established 1947;
- Pork Producers Marketing Board of Nova Scotia, established 1952;
- Nova Scotia Chicken Marketing Board, established 1966;
- Nova Scotia Egg and Pullet Producers Marketing Board, established 1966;
- Nova Scotia Turkey Marketing Board, established 1972;
- Nova Scotia Flue-Cured Tobacco Growers Marketing Board, established 1973;
- Nova Scotia Processing Pea and Bean Marketing Board, amalgamated 1988;
- Nova Scotia Winter Grain Marketing Board, established 1982;
- Nova Scotia Potato Marketing Board, established 1982;
- Nova Scotia Evening Primrose Marketing Board, established 1986;
- Nova Scotia Greenhouse Vegetable Marketing Board, established 1987.

A producer plebiscite was held in 1988 for establishment of an Apple Marketing Board but was defeated.

During the years, the council met on 16 occasions, including five pricing appeals involving the Turkey Marketing Board and three appeals involving the Chicken Marketing Board.

BRANCH POLICY PROGRAMS

School Milk Program

The School Milk Program continues to be well accepted by the school population. A total of 543 schools were registered, which represented about 94 per cent of the total Nova Scotia school population. The Nova Scotia Department of Agriculture and Marketing contributed $1.6 million to this program.

Nova Scotia Pork Price Stabilization

In 1988-89 approximately 200 producers were enrolled in the program. This was the last year of the program as such, as Nova Scotia joined the National Tripartite Stabilization scheme in March 1989. During its final year, the Nova Scotia Department of Agriculture and Marketing's expenditures for the program totalled $8.7 million.

Hog Transportation Policy

The Live Hog Transportation Policy assisted producers in defraying a portion of the costs for transportation to market. To achieve this, the department contributed $150,000.

TARIFF

The branch continued to administer the seasonal tariff application and removal on imported fruits and vegetables into the Maritime Tariff Zone. During the 1988-89 fiscal year, tariff protection was applied to snapbeans, beets, broccoli, cabbage, carrots, cauliflower, corn, lettuce, onions, pears, peas, plums, strawberries, cucumbers, and tomatoes.

REGULATIONS

As administrators and advisors to the Minister regarding the Nova Scotia Fruit and Vegetable Regulations, a liaison was maintained with federal inspection services. During the year, 87 detentions were enforced. Authorization was granted for four experimental grades of produce and for two experimental package sizes.

The inspections fees section of the regulations was repealed and rewritten to better conform with the federal requirements.

ECONOMICS SERVICES

The branch provides economic analysis and associated services to the department and industry with respect to policy issues.

With the onset of the Canada/U.S. Free Trade Agreement, formal presentations were prepared and presented to agricultural interests and organizations detailing possible ramifications of the agreement on the Nova Scotia industry.

The Feed Grain Policy and feed cost problems were analyzed, and a paper was presented to the Canadian Agricultural Economics and Farm Management Society's annual meeting. A feed freight assistance review was carried out for the Nova Scotia Federation of Agriculture, which proved useful in their approach to the federal government.

A dairy industry review was prepared and presented by the industry at national hearings.

Working with Statistics Canada, Nova Scotia production statistics were gathered and updated.

Services were given to the Pork Price Stabilization Board preparing forecasts of plan expenditures.

Technical papers were also prepared dealing with farm machinery, greenhouse vegetables, the apple industry, and regional development.

MARKETING DEVELOPMENT

Livestock

Specific market assessments and profiles were undertaken for industry and other agencies during the year. These included the countervail duty on hogs and processed pork, poultry market demand surveys at retail and foodservice, a consumer survey on beef, a dairy-goat assessment, product exports of Nova Scotia origin, a market profile for Nova Scotia ice cream, an evaluation of turkey co-operative advertising, assessment of organic food markets, and retail advertising analysis on various meat cuts.

Investigative visits were made to Caribbean and U.S. markets to assess potential livestock markets.

Horticulture Crops

The branch continued to work closely with fruit and vegetable producers on marketing matters. This took the form of consultations with individual producers and marketing organizations. As well, the branch participated in short courses and seminars, which are proving to be the most popular educational tools.

A close liaison was maintained with the wholesale/retail trade and with national and international organizations representing these industries, thus giving Nova Scotia production a presence in these areas.

Market Information

The branch has attempted to keep pace with the ever-increasing sophistication in market information transfer. A computer-based remote bulletin board service (RBBS) was introduced to feed information to the growing number of computer-equipped farms. This has greatly improved the branch's information capabilities.

The "Market Line," a recorded fruit and vegetable report, continued operation out of the Kentville office along with the seasonal *Fresh Produce Supply Forecast*, which is mailed weekly to the produce trade and news media.

The bi-weekly *Market Report* was again published and mailed to producers, media, and agri-business.

Along with these ongoing information sources, the branch investigates individual price and supply situations as required by the industry.

PROMOTIONS

The branch continues to play a major role in the promotion of Nova Scotia agricultural products. Working with producer associations, promotions were implemented for blueberries, apples, honey, pork, beef, and vegetables.

Nova Scotia production was represented at several trade shows including Sea Sell '88, Bakery Showcase '88, Canadian Fruit Wholesalers Association, and Apex '89.

The Marketing and Economics Branch coordinated displays at the Cumberland and Annapolis county exhibitions, Food Fair Atlantic '88, the Atlantic Winter Fair, and Swing Into Spring '88, all of which featured Nova Scotia products.

Working with other governmental departments, a multipromotional binder was initiated to be used as a promotional and educational tool.

The extensive and ongoing Taste of Nova Scotia promotion was initiated in the past year. Working with the restaurant and food industry, a campaign to upgrade the standards of food quality and presentation was commenced. To complement the food experience offered in restaurants, a campaign was initiated at various tourist information centres, which offered samplings of Nova Scotia food and directed consumers to their source.

Foodservice

The Marketing and Economics Branch recognizes the hotel, restaurant, and institution market as a rapidly expanding food market to which we give singular and increased service. Several promotions and programs were developed and specifically aimed at that market. The promotions included Meat Month and Restaurant Month, Out of the Blue, Nova Scotia's Delightful Drinkables, N.S. Strawberry Sensations, July Is Egg Month, Veggie Campaign, Promise of Pork, and Expo Pork.

The Foodservice Directory was updated and published in 1988. This contains a listing of more than 2,000 establishments as well as sources of supply of Nova Scotia agricultural products.

AUDIO VISUAL SERVICES

The audio visual sector continues to provide promotion and educational aids for the branch and the Department.

Slide presentations and videos are finding increased favor in both promotion and education. To accommodate this demand a computer graphic system has been installed to give quality reproduction. A slide library is maintained and increased to give a wide selection of subject material.

Food photography is an improved service that is now producing professional results. This allows the presentation of Nova Scotia agricultural food products in their best image.

In our recording studio, 490 recording sessions were produced. Of these, 174 were for the *Nova Scotia Garden Guide* series.

There were 1,090 reel-to-reel tapes produced for distribution to subscribing radio stations in the province.

MARKET RESEARCH

In the past year a new dimension has been added to the Marketing and Economics Branch, that of market research. Here, special attention is given not only to market research but also to economic analysis. This will centralize inquiries formerly received by various staff members from the industry and education interests. As well, our market specialists can look to this facility for in-depth studies relative to their work.

The remote bulletin board service (RBBS) resulted from the evaluation of various information services and was styled to service the industry's needs.

Market studies have been done on the Nova Scotia beef and maple industries and on modified atmosphere packaging of horticultural crops.

EXPORT TRADING

Members of the branch attended several national meetings regarding the Canada/U.S. Free Trade Agreement.

National meetings were also attended to examine interprovincial trading and its acceptance in relation to the forthcoming General Agreement on Tariff and Trade (GATT) negotiations.

HORTICULTURE AND BIOLOGY BRANCH

OVERVIEW

The Horticulture and Biology Branch provides and advisory service to the horticultural industry on techniques of commercial food and ornamental crop production.

Horticulture specialists in the branch are assigned to the following commodity areas: tree fruits, berry crops, vegetables, greenhouse, ornamentals, maple, lowbush blueberries, and home gardens. The Biology Section of the branch consists of an apiculturist, two entomologists, and a plant pathologist.

The horticulture industry in the province continued to expand in 1988. The total farm value for horticultural crops in Nova Scotia is now in excess of $87 million per year.

APICULTURE

Honey production was below normal in 1988 with the average yield at 62 lb. (28 kg) per hive, 10 per cent below the 10-year average of 68.2 pounds/colony (31 kg/colony). Total honey production was estimated at 350,000 lb. (159,000 kg), 24 per cent below the 10-year average of 460,680 lb. (209,400 kg).

The dollar value of the 1988 crop was estimated at $505,000. If income from hive rentals is included, the total farm gate value is $655,000. This figure does not reflect the true value of the beekeeping industry as it does not include the dollar value of the gain by crops pollinated by honeybees.

In all, 676 packages were imported from New Zealand compared to 1,704 in 1984. The total number of queens purchased in 1988 was 1,336 compared to 2,273 in 1987. Queens were imported from New Zealand and Australia.

Present trends within the industry are to overwinter a larger percentage of bees and rely less on importation of package bees because of the risk of infestation with *Acarapis woodi*, the honeybee tracheal mite. The estimated number of colonies prepared for the winter of 1988-89 was 5,415, 95 per cent of the 5,700 colonies in the province. There is a growing potential for a local queen rearing and nucleus hive production industry. However, Nova Scotia beekeepers still rely heavily on the importation of queen bees from New Zealand.

A total of 383 colonies were inspected for brood diseases, and 131 colonies were sampled and analyzed for Varroa mite.

APPLE MAGGOT CONTROL

Over the past few years, infestations of apple maggot have levelled off at about 20 per cent, with the exception of 1983. According to surveys carried out by the Apple Maggot Control Board, 81 per cent of Nova Scotia orchards were free of apple maggot in 1988. The apple maggot survey results for the past seven years are given in the following table.

	1988	1987	1986	1985	1984	1983	1982
No. of registered growers	189	190	190	216	230	236	253
No. of blocks	663	667	655	695	710	697	755
No. infested blocks	124	115	133	113	124	182	118
% blocks infested	18.7	17.2	20.3	19.1	17.5	26.1	15.6
% of contacts infested	28.1	32.2	27.6	37.6	37.4	45.0	29.2

As in the past, the Apple Maggot Control Board and the Food Production and Inspection Branch of Agriculture Canada cooperated in carrying out the August and September orchard inspections. A total of 12 inspectors participated in the four-week survey during which time 1,165 inspections were completed (663 of these were of commercial orchards).

BERRY CROPS

The 1988 berry crop, excluding lowbush blueberries, grossed Nova Scotia growers $6,779,000. This is an increase of $905,000 over 1987 returns. Higher production occurred in strawberry, highbush blueberry, and grape crops. The certified strawberry nursery sales continue to expand in the export market.

Strawberries

The 1987 Nova Scotia strawberry industry is valued at $5,681,780, up $639,000 over the 1987 value.

The 1988 harvested strawberry crop is estimated at 4.5 million quarts, up one million quarts over 1987 but below the five million quarts harvested in 1984

and 1985. The acreage of the potential producing strawberry fields is estimated between 900 to 1000 acres.

The 1988 strawberry prices was $0.972 per quart compared to $1.105 for 1987 and $0.977 for 1986.

In 1988, 30 per cent of the total strawberry crop was sold as u-pick, 53 per cent wholesale, 10 per cent processing, and 7 per cent sold fresh out of province.

The Nova Scotia certified strawberry nursery program recorded another record in plant sales of 22,521,000 plants valued at $1,306,000. Over 93 per cent of these sales were out of province and a large percentage were to the United States. A few sales were made to the United Kingdom and Spain.

Highbush Blueberry

The highbush blueberry farms in western Nova Scotia are making a reasonable comeback from the serious 1986-87 winter injury. The 1988 crop is estimated at 320,000 pints, up substantially from the 1987 crop of 77,000 pints. The 1988 crop was down 28 per cent compared to a normal crop of 450,000 pints. It will be 1989 and 1990 before production returns to a normal level

Grape

The 1988 season was very favorable to the developing grape industry. Production is estimated at 125 tons. Many new plantings are coming into production.

The 1988 Grape Acreage Survey recorded 51 growers with 204 acres located in seven counties. In 1988, 15.5 new acres were planted and 9.8 acres were removed.

The fifth commercial grape short course was held in Kentville on March 7–10, 1988, and a grape seminar was held on March 28. Two vineyard tours were held, one in Kings County in August and a fall tour in Pictou and Cumberland counties in September 1988.

Blueberries

Nova Scotia's record 1988 lowbush blueberry crop totalled 22,005,048 lb. (9,981,489 kg). Average provincial production for the past five years is 17,760,109 lb. (7,783,825 kg). Farm gate value for the 1988 blueberry crop was

$13,203,000 based on 60 cents per pound paid to the grower. Total value to the provincial economy would be about $36 million. The lowbush blueberry industry consists of 1,000 growers and an estimated 26,000 acres (10,400 ha) in production. Of the 1988 blueberry crop, 16.9 million lb. (7,682,083 kg) were processed in Nova Scotia; 4.6 million lb. (2,086,224 kg) were exported fresh to the United States and other provinces for processing; and fresh sales in Nova Scotia totalled 469,978 lb. (213,182 kg).

Trends in the blueberry industry include the continued growth in the use of mechanical harvesters and a shift from burning to flail mowing as a pruning method. Levelling and smoothing of blueberry land to facilitate the use of flail mowers and harvesters is a priority for the future of the industry.

Assistance for clearing lowbush blueberry land was available under the Department's Land Improvement Policy in 1988. Blueberry growers were also able to apply for assistance for rock and stump removal using industrial equipment, as well as drainage and firebreak construction on blueberry acreage.

The Nova Scotia Blueberry Institute is in its seventh year of operation and acts as a coordinating body for investigative research, providing assistance to the blueberry industry through demonstrations and educational programs, and providing field sites for plot research and demonstrations. A block of land 17 acres (7 ha) in the Debert Industrial Park has been deeded to the Nova Scotia Department of Agriculture and Marketing for use in research and demonstration projects. The institute is currently administering an extensive land levelling project.

GREENHOUSE INDUSTRY

There are approximately 43 acres (17.5 ha) of greenhouses and over 80 commercial greenhouse producers in Nova Scotia. Production is spread throughout most of the province with the largest producers situated in Annapolis, Kings, Hants, and Cumberland counties. Total sales for 1988 were estimated at $17.7 million.

Ornamental plant production is the largest segment of the industry and includes cut flowers, flowering pot plants, foliage plants, bedding plants, and vegetable transplants. Over 33 acres (13.4 ha) of greenhouse are used for these crops, and sales totalled $16 million in 1988.

The greenhouse vegetable industry is approximately 10 acres (4 ha) in size and nearly equally divided between tomato and cucumber production. Market-

ing takes place between March and October, and the 15 producers achieved sales of $1.7 million in 1988. Hydroponic production of lettuce is a new crop for two growers with limited year-round production.

MAPLE SYRUP

In 1988, 68 maple operations in the province produced and sold a total of 20,700 gallons (93,978 L) of syrup from 224,800 taps. This is a 113 per cent increase in production over 1987. The average operation made 305 gallons (1,384 L) from 3,305 taps.

The number of taps continues to grow as demand for syrup grows. Two or three new maple syrup operations start up each year. Thus, in terms of the number of taps and gallons of syrup produced, the maple industry has been and continues to be in an expansion stage.

ORNAMENTALS

The landscape sod and nursery industry was valued at $19.8 million in 1988. Over 1,300 people are employed in this industry. The following is a listing of the individual components and the number of establishments in the industry.

Sod growing	20 growers, 3,500 acres (1,416 ha) in production 5,324,363 sq. yd. (4,451,700 m^2) harvested Value: $6,389,000
Landscape contracting	56 establishments
Landscape maintenance	13 establishments
Ornamental nurseries	20 establishments 200 acres (81 ha) in production
Garden centres	36 establishments
Tree pruners	8 establishments
Miscellaneous sales stations	54 establishments

The Department of Agriculture and Marketing also provides home garden extension assistance. In addition to handling over 5,000 telephone information requests and 461 written requests, the branch assisted 36 garden clubs, 6 horticultural and 5 speciality societies in the province, having a total membership of over 1,400 people. The popular *Nova Scotia Garden Guide* radio program is also produced by this division. A total of 130 tapes were distributed to 12 radio stations in the province during the year.

TREE FRUITS

The 1988 growing season will be remembered for its favorable growing conditions, which resulted in the largest apple crop since 1946. Fruit trees overwintered well with the exception of stone fruit varieties. Fruit set was heavy and weather conditions during the growing season were favorable. Apple scab was not a problem and fruit color and size were excellent.

The overall farm gate value of the 1987 tree fruit crops was estimated at $11,903,000 compared to $9,631,000 for 1986.

Apples

The preliminary estimate placed the 1988 apple crop at 4,200,000 bushels compared to 1987's crop of 2,800,000 bushels. The farm gate value of the 1987 apple crop was estimated at $9,618,000 with an average return of $3.44 per bushel.

Marketing and adequate financial returns remain major concerns for fruit growers. A National Apple Tripartite Stabilization Program was introduced in the fall of 1987 for the five apple-producing provinces. In Nova Scotia, 147 apple growers enrolled in the program and registered over 121 million lb. (55,000,000 kg) of apples for 1988.

Pear and Stone Fruit

The 1988 pear crop was estimated to be 90,000 bushels, which would be 20,000 bushels higher than the 1987 crop.

The value of the 1987 pear crop was $661,500, with an average return of $9.45 per bushel. The plum crop was estimated at 5,500 bushels compared to 7,000 bushels in 1987. Value of the 1987 plum crop was $115,640 or $16.52 per bushel. Peach and cherry crops were down from those in 1987.

The number of new fruit trees planted in 1988 was estimated at 20,000 compared to previous years when 50,000 trees were planted annually.

VEGETABLES

In the province, 12,285 acres (4 972 ha) of vegetables are grown by 328 producers generating an estimated $15.3 million at the farm gate (excluding greenhouse vegetable crops). An estimated 178,000,000 lb. (81 000 000 kg)

of marketable vegetable crops are produced annually. Seventy-five per cent of the vegetable crops area is in Kings County; 20 per cent is in the counties of Cumberland, Annapolis, Colchester, Cape Breton, and Pictou; 5 per cent is in the counties of Hants, Lunenburg, Halifax, Yarmouth, and Digby.

Crop yields in 1988 were excellent, and quality was high compared to most of North America, which suffered from the drought and hot weather. Good weather in May and June and adequate rainfall contributed to a good year for vegetable crops. Carrot crops were near the record production of 1987. Potato yields were high and probably constitute a new record for this province. High rainfall in September reduced the storage quality for some crops.

Potato plantings totalled 4,100 acres (1,659 ha): 1,300 acres (526 ha) for the early tablestock market, 2,650 acres (1 072 ha) for processing and 150 acres (161 ha) for certified seed production. Farm gate value of the potato industry is estimated at $5,600,000 making it the largest vegetable crop. Carrot acreage for 1988 was 1,520 acres (615 ha) valued at $2,128,000. Processing carrots accounted for 1,100 acres (445 ha) and fresh carrots, 420 acres (170 ha). Cole crops, including broccoli, brussel sprouts, cabbage and cauliflower totalled 935 acres (378 ha) valued at $2,528,000.

For rutabagas, production from 450 acres (182 ha) was valued at $900,000. Processing snapbeans and peas were estimated at 1,700 acres (688 ha) and 1,500 acres (607 ha) respectively with a combined value of $1,440,000.

BULK BIN POLICY

The Bulk Bin Policy is administered through the Horticulture and Biology Branch. Fruit and vegetable growers were eligible to apply under the policy. The assistance under the policy was $10 per bin up to a maximum of $2,000. The minimum number of bins eligible was 25.

A total of 85 applications was approved of which 75 claims were processed (52—fruit; 23—vegetable). The total value of this policy was $81,460 ($61,790—fruit growers; $19,670—vegetable growers). There were 8,146 bins built under this policy.

EXTENSION SERVICES BRANCH

OVERVIEW

The primary objective of the Extension Services Branch is to provide service to rural clients through personal contact, extension education programs, and work with commodity and farm organizations to enhance their economic viability. One-on-one personal contact remains the cornerstone on which programs and services are based. Human resource development, technology transfer, counselling, and the provision of technical services are highlights of the work carried out by staff of the branch.

FIELD SERVICES

Agricultural representatives provide a "first point contact" to rural clients on matters relating to livestock, soils, crops, farm management, farm loans, and rural development. Their role also involves the planning and implementation of a cooperatively planned extension education and advisory service to Nova Scotia farmers, farm organizations, and others involved in the agricultural industry.

In 1988, 14 county offices, with a staff complement of 32 people, were maintained to serve rural Nova Scotians. Through farm and office calls, meetings, short courses, and tours, staff delivered extension education programs on production, financial management, and marketing areas as required by clientele.

In 1988, a total of 16,650 farm and office calls were handled, and 1,370 short courses, meetings and tours were attended, with participation by clients at 38,600.

It is the responsibility of the agricultural representatives to communicate and provide up-to-date information on all matters relating to agricultural production and marketing. This involves technical as well as policy information.

FARM MANAGEMENT

The primary objective of the Farm Management Division is to assist Nova Scotia farmers, farm leaders, and staff of the Department in developing their farm business management knowledge and skills. To meet this objective, the program provides service in three key areas identified as farmer counselling, education, and management information.

Farmer Counselling

Individual farmer contact continues to be a major part of the Farm Management extension program. During 1988, a total of 803 farm and office calls were made. A breakdown of the purpose of these calls indicates the following:

Record systems and analysis	272
Pre-loan counselling	126
Business agreements & tax management	113
Financial management & analysis	149
General farm management	143

During 1988, staff prepared 169 formal budgets for farmers. Clients are often referred to the division by others in the Department of Agriculture and Marketing, as well as by bankers, lawyers, and accountants. In 1988, 256 referrals for assistance were received.

Education Programs

One of the key roles of the Farm Management Division is to enhance the business management knowledge and skills of clients. While part of this objective is met by individual contact, educational programs are another method used by staff. In 1988, staff participated in 47 short courses throughout the province.

Management Information Programs

The need for up-to-date, reliable management information related to costs, returns, and production factors has been increasing over the past number of years. In 1988, a number of farm business summaries, fact sheets, and newsletters relating to the farm business management area were prepared and distributed.

4-H AND RURAL YOUTH

"Catch the 4-H Wave" was the theme of the 4-H program in Nova Scotia in 1988. Throughout the year, this theme was used as the thought behind all 4-H events held in the province.

Nova Scotia 4-H Council

The council met six times during 1988 and provided valued direction to the 4–H program in this province. The Council President for 1988 was Faye Moore from

Cumberland County. Council holds a seat on the Atlantic 4-H Committee and is committed to the promotion of 4-H in Nova Scotia.

Nova Scotia 4-H Weekend

Over 300 4-H members and leaders gathered in Truro, Nova Scotia, on May 6-8 for this program. Provincial competitions were held in public speaking, demonstration, square dancing, host and hostess, woodsman, posters, and decals categories. The highlight continues to be the "4-H Night in Nova Scotia" with over 800 people attending this evening program.

The 1988 4-H Host and Hostess were Chris Van den Heuval, Inverness County, Nova Scotia, and Lisa Scott, Pictou County, Nova Scotia.

Nova Scotia 4-H Show

The 11th Annual 4-H Show was hosted by Cape Breton County at the fair grounds in North Sydney on September 29 to October 2. Under the chairmanship of George MacNeil, the largest attendance ever was achieved to see this showcase of champion 4-H projects and competitors from across the province.

The Nova Scotia Market Steer and Lamb Show 'N Sale is held in conjunction with the show. The average price paid for steers was $1.62 per pound, and lambs averaged $2.59 per pound.

Other 4-H Programs

Camp Rankin continues to be an important part of the summer 4-H program. All camps were filled in 1988. The camp program was given excellent direction by Marlene MacMillan.

Nova Scotia hosted the Atlantic 4-H Leaders' Conference in January.

Seams Spectacular, a provincial 4-H sewing leaders' workshop was organized by the Home Economics Division during the year.

For the first time, Nova Scotia participated in the Royal Winter Fair Beef Heifer Classic, as well as participating in the Scotia Bank Contact Hayes Classic at the Royal Winter Fair in Toronto.

4-H Statistics

In 1988, 2,933 4-H members were enrolled in 131 multi-project clubs. The average age of the 1,125 boys and 1,805 girls was 12.4 years; 962 volunteer adult leaders managed the local clubs; and there were 4,033 projects completed for a completion rate of 85.7 per cent.

Project Breakdown

Beef calf	209	Food	313
Dairy calf	293	Sewing	245
Poultry	110	Crafts	693
Horse	279	Other homemaking	200
Sheep	68	Woodworking	325
Rabbit	261	Outdoorsman	213
Other livestock	278	Photography	154
Horticulture	172	Others	220

HOME ECONOMICS

The Home Economics Division is actively involved in the development and implementation of programs that promote the consumption of Nova Scotia food products.

The division also plays an important role in leadership and personal development initiatives through organizations such as 4-H, Women's Institutes, and various farm and commodity groups.

Food Education and Promotion

Food education has remained an important element in programming in 1988. The focus has been to encourage Nova Scotians to buy and use Nova Scotia agriculturally produced foods. Through demonstrations, presentations, short courses, and media, the nutritional value of Nova Scotia-produced foods is highlighted. The news media are one of the main vehicles that the Home Economics Division uses. The new approach of having Agri-Focus columns developed one month at a time is working well.

Women's Institutes of Nova Scotia

Membership in the Women's Institutes stayed relatively stable in 1988 with 1,831 members. The Women's Institutes are a very valuable community contact for the Nova Scotia Department of Agriculture and Marketing and often assist with getting programs launched.

The year 1988 marked the 75th Anniversary of Women's Institutes in Nova Scotia. A number of special events were held to commemorate this occasion, including a reception at Government House and hosting Princess Margaret on her visit to Nova Scotia.

4-H Homemaking

The 4-H program continues to be a high-energy, labor-intensive program. Home Economists act as advisors and resource people to the 4-H program. This includes the development of manuals and special leader training sessions.

Through the Canadian 4-H Council, Nova Scotia was successful in obtaining funds from Imperial Oil for a sewing leaders' workshop. "Seams Spectacular" was a highly successful workshop planned and carried out by Home Economics staff.

Farm Women's Conference

The 9th annual Farm Women's Conference was held in Truro in 1988 with 86 delegates in attendance. Planned jointly with the Women's Institutes of Nova Scotia, Federation of Agriculture, farm women, and Home Economics staff, the conference provides an opportunity to meet and discuss issues involving the management of the farm business and other related issues.

EXTENSION AGRICULTURAL ENGINEERING

The work of the Extension Agricultural Engineering Division involves the provision of technical support services to assist farmers and the agriculture industry in the construction of capital works. The work of the division can be summarized under five categories: Land Development, Land Protection, Crop Processing and Energy, Farm Mechanization, and Farm Structures.

Land Development

The program covers the provision of technical and design services with respect to drainage, land clearing, land forming, farm pond construction, dykeland roads, and irrigation. Effort is also directed at the administration of the Land Improvement Policy. A statistical summary of the work is as follows:

Number of applications approved	921
Number of applications rejected	24
Total value of applications approved	7,884,725
Grant value of applications approved	5,913,544
Total value of claims processed	4,911,864
Grant value of claims processed	3,683,714

Land Improvement statistics are as follows:

Category	**Units of Work Completed**
Land clearing	1,913 acres
Windrow removal	43,490 feet
Apple tree removal	6,964 trees
Underdrainage	3,497,086 feet
Surface ditching	515,609 feet
Ditch spoil levelling	229,531 feet
Land forming	638 acres
Roads on dykelands	7,927 feet
Land levelling	418 acres
Blueberry land clearing	113 acres
Firebreak construction	64,623 feet

Land Protection

This area includes programs related to the operation and maintenance of 150 miles of dykes and 278 aboiteau structures. Flood control structures for the Musquodoboit River and Brierly Brook are included as well. Main Outlet Drainage Policy work falls under this section of the program. The statistical summary is as follows:

New aboiteaux constructed	2
Aboiteaux repaired	5
Main outlet drainage ditches excavated	220,240 feet
Ditching surveys	296,000 feet
Land forming surveyed	660 acres
Dyke profiles surveyed	114,900 feet

The majority of aboiteaux were constructed during the 1950s and were constructed with wooden timbers. These sluices are starting to show wear and deterioration. An ongoing program of repair and replacement is being carried out.

Crop Processing and Energy

Work in this area involves technical advice and design on crop processing, refrigeration, storage, and energy efficiency systems. During 1988, service was provided to the Provincial Grain Commission and to individual farmers on storage for fruit and vegetables, refrigeration and pre-cooling systems. Innovative projects on hay and grain drying systems are also evaluated under this section of the division.

Farm Mechanization

Rapid change is the key characteristic of this section of the agricultural industry. Machinery evaluation and demonstration have proven to be an excellent method of keeping the industry informed of new technology and developments. Examples of the evaluations carried out include:

- hay basket evaluation
- plastic mulch layer
- block lettuce transplanter
- blueberry land levelling
- windrower merger
- safety film production
- spray check evaluation system

Farm Structures

An important segment of extension engineering work is the provision of engineering counsel and technical planning for farm structures. Structures include livestock housing, crop storages, manure storages, machinery buildings, and other miscellaneous structures. A summary of the structure work is as follows:

New plan sets prepared	142
Number of plan sets distributed	2,638
Number of plan sheets distributed	6,500
Number of farm structure calls	606

Custom plan sets prepared by staff engineers are as follows:

Beef	19
Dairy	24
Hogs	14
Sheep	2
Poultry	9
Fruit and vegetable	6
Grain, forage, and feed	13
Miscellaneous	55

Assistance and Special Programs

The branch administers a number of assistance programs and special projects. Included here are the Capital Grants Program, Manure Storage Policy, Limestone Policy, and considerable input into the Atlantic Livestock Feed Development and the Canada/Nova Scotia Agri-Food Development agreements. Special projects include World Food Day, Farm and Home Safety programs, and Farm and Country Vacation Program.

SOILS AND CROPS BRANCH

OVERVIEW

The Soils and Crops Branch is responsible for the following areas:

- Crop extension activities for all cereal and forage crops grown in Nova Scotia that are utilized either as human or animal feeds. Tobacco, which is grown entirely as a cash crop, is also the responsibility of the Soils and Crops Branch;

- Weed expertise for all crops and the administration of the Weed Control Act;

- Soils expertise, including soil survey, to serve all branches of the Department of Agriculture and Marketing and other departments of government, i.e., Departments of Health and Fitness, Lands and Forests, and Environment;

- Establishing coordinated criteria for land use planning as affected by the Nova Scotia Department of Agriculture and Marketing and other departments of government, i.e., Development, Transportation and Communications, Municipal Affairs, Lands and Forests, and Tourism and Culture;

- Provincial Laboratory Services, which are maintained at Truro, serve all professional staff of the Nova Scotia Department of Agriculture and Marketing, all farmers, market gardeners, greenhouse operators, and homeowners with chemical analysis of soil, water, plant foliar, and livestock feed samples. Soil physical and pesticide residue analysis services are also available.

THE SEASON

The average departures from the 30-year normals for temperature and precipitation are represented for nine stations in Nova Scotia in the table below.

Spring started off fairly mild in early April; however, the latter stages of the month proved to be rather uncooperative as cold temperatures and unseasonal amounts of snow delayed seeding and made field work difficult.

The May average temperatures were 1°C to 2°C above normal and produced heat units approximately 25 to 30 per cent above average. While most areas measured above average temperatures, the rainfall distribution

was anything but uniform as totals ranged from 45 per cent above normal to as low as 60 per cent below normal.

Unseasonably cool weather during the first week and a half of June, with many locations receiving a killing frost, coupled with generally overcast conditions prevailing throughout the month contributed to average temperatures for June that were 1°C to 2°C below normal and dropped the seasonal heat units to around normal for that time of the season.

High amounts of rainfall, at least 100mm at most stations, dictated the month of July and assured above average rainfall for the season. This rainfall, along with above average temperatures and corn heat units for the month, allowed for excellent growing conditions.

Except for substantially less rainfall, August picked up where July left off. Corn heat units for the second month in a row were approximately 10 per cent above normal. These good growing conditions for July and August helped make the growing season of 1988 an excellent year for corn growth.

A cool September brought the corn heat units for the season to about 5 per cent above normal or, in other words, two to three days of extra growth than would normally be expected. However, low amounts of precipitation created generally favorable harvesting conditions.

Average Temperatures (°C) and Total Precipitation (%)
Departures from Normal During 1988

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temp.	-.4	+1.0	+.4	+.1	+1.8	-1.2	+.7	+1.2	-1.4	-.8	+1.0	-1.4
Prec.	-32	+50	-37	+83	-27	+10	+97	-20	-35	+74	+38	-47

The month of October was one of the wettest on record with rainfall 60 per cent above normal. First fall frosts were generally one to two weeks later than the average, which was beneficial to the late season weather-sensitive crops.

The lack of sunshine received during most of June and July contributed significantly to bring seasonal hours of bright sunshine down to about 10 per cent below normal on the average. This translates into approximately 10 fewer days of full sunshine for the season.

CEREAL CROPS

Winter wheat plantings were up considerably over 1987 due to favorable planting conditions and price.

Winter cereals generally overwintered well. The small amount of winter kill was due to snow-mold related organisms which developed as a result of a lack of frost and a continuous snow cover. Early spring growth was good although weather was cool. Disease pressure was light to moderate until late in the season when heavy rains encouraged late Septoria and Fusarium. Wet harvest conditions slowed harvest and this, combined with the disease, resulted in a lower quality winter wheat. Most of the crop made acceptable milling quality, however.

Cool, wet conditions in late April delayed spring planting in all the province until the first week of May. This amounted to a 7- to 10-day delay for the Annapolis Valley region. Following this period, however, a stretch of fine weather resulted in an estimated 80 per cent of crops being seeded by May 24. Only Cape Breton was exposed to extended periods of wet weather that delayed seeding.

The growing season was variable with a dry, cool period through late May and June, followed by heavy rains in late July. Weed control was variable due to growing conditions and disease and lodging pressure was heavy late in the season. This, combined with extended wet periods during harvest time, led to a generally difficult spring cereal year.

Nova Scotia Winter Grain Marketing Board

The Nova Scotia Winter Grain Marketing Board is a producer-operated board that markets winter and spring grains as well as corn, soybeans, and canola. The board also has the responsibility of marketing all the wheat grown in the Maritimes that is used for bread flour. In 1988, 68 per cent of the milling wheat came from Nova Scotia, 10 per cent from New Brunswick and 22 per cent from Prince Edward Island.

The 1988-89 crop year proved to be a challenging one for the Nova Scotia Winter Grain Marketing Board. Planting, growing, and harvest conditions were not nearly as favorable for cereal yields and quality as in 1987. Milling wheat was particularly affected and suffered some quality deterioration due to sprouting and disease pressure.

Spring milling wheat in the three Maritime provinces suffered the most as a result of late seeding and a damp harvest period. Prince Edward Island was the worst-hit in this regard.

Nevertheless, Maritime milling wheat production increased from 10 305 t in 1989 to over 13 500 t this year. The board is challenged to keep pace with this rate of growth, as growers and elevators, particularly in New Brunswick and Prince Edward Island, attempt to manage the crop for maximum quality retention.

Milling and baking quality has been variable and, in the case of some of the spring wheat, lower than market standards. Dover Mills Limited continues to be very supportive of the industry and is working diligently to blend local wheat in its grists to best advantage.

Winter milling wheat production was up 50 per cent to 6 000 t in 1988. Its milling and baking performance is consistently excellent and Dover is encouraging higher production of winter varieties. In time, winter varieties may be grown in areas of the region heretofore thought unsuitable.

Prices for milling wheat were down from the 1987 levels by $35 to $40 per tonne, or 15 per cent, due to the termination of the market-based two-price wheat policy on August 1, 1988. A one-year compensation package will make up about 75 per cent of this loss. It is hoped that increasing world demand and dwindling world stocks will place upward pressure on 1989-90 prices. This is likely to apply more to milling wheat than to either feed grains or oilseeds, although gains are possible there as well.

The actual milling wheat price obtained to date was further reduced due to poor milling and baking quality in the Max spring wheat.

Although feed grain prices have recovered by 40 to 60 per cent from 1988, this did not take place early enough in the crop year to greatly influence 1988 plantings. As a result, feed grain volume in the board's pools (wheat, rye, oats, barley, and corn) was the lowest since 1980 at 3 500 t. Higher prices will likely mean at least some increase in feed grain volumes for 1989.

To date, $2.9 million has been paid to producers in federal advance, provincial advance, and interim payments on the 1988 pools. This is up 50 per cent from this time last year.

The number of producers participating in the various pools this year is 189, compared with 191 last year and 135 in 1986-87. The total pool volume is 17 300 t, up 15 per cent from 15 041 t last year. Volume in 1986-87 was 9 760 t.

FORAGE CROPS

While forage crops grew well in 1988, the average quality of stored forage was lower. On most farms, weather delayed harvesting of first cut hay until late June–early July. It was nearly impossible to make first or second cut hay in the eastern region of the province, which received rain almost every other day. The western region had better weather resulting in higher quality hay.

Those with capability for haylage fared much better. The major advantage of ensiling grasses and legumes is that there is less hindrance from unfavorable weather conditions. A few good days in early June allowed first cut haylage to be harvested before crop quality dropped.

Hay and haylage samples analyzed at the Provincial Laboratory (Table 2) seem to indicate that average haylage samples are 8 per cent higher in digestibility and 6 per cent higher in crude protein than hay. The average protein for 1987 is 24.7 per cent higher than the 1983-86 period average for hay samples (Table 3).

The bad haying weather and a higher awareness of the importance of "quality" forage has helped develop a strong trend toward haylage. Haylage systems requiring lower start-up costs, such as round bale bagging or wrapping, have become increasingly popular in Nova Scotia. There has also been an increasing number of farmers having at least part of their crop custom harvested. Newer haylage harvesting systems like the high density baler, the European forage wagon, and the round bale wrapper are highly mobile and do not require structures to store their products, making them ideal for custom operations.

Nova Scotia Forage Council

The steering committee for the formation of a Nova Scotia Forage Council composed of Bill McCurdy (Nova Scotia Milk Producers Association); Charles Hubbard (Cream and Industrial Milk Producers); Rick Williams (Nova Scotia Cattlemen's Association); Hardy Beviss (Nova Scotia Hay Producers Association); Jonathan Wort (Sheep Producers Association of Nova Scotia); Jim Borden (Soil and Crop Association); and Bill Thomas (Provincial Forage Specialist) met several times during 1988. The meetings were very productive with a set of proposed organizational by-laws being drafted as well as several major provincial and national forage concerns being identified and priorized.

Through funding acquired from the Human Resource Development Program of the Atlantic Livestock Feed Initiative and the local Soil and Crop

Improvement Associations, the steering committee sent delegates to both the inaugural and the first annual meeting of the Canadian Forage Council.

The Nova Scotia Forage Council steering committee has been very instrumental in shaping the Canadian Forage Council's position and response to several issues of concern to forage producers in our region. The Canadian Forage Council is being recognized by federal policymakers as a legitimate voice of Canadian farmers.

TABLE 1
1988 Pool Summary — April 10/89

Pool	Volume (t)	% Sold	Avg. Market Price to Date This Year	Last Year
Milling Wheat				
Absolvent	3 069	94	$232.54	$270.00
Monopol	2 749	94	232.54	271.16
Perlo	132	0	—	271.09
Karat	166	0	—	270.68
Max	6 465	57	217.20	273.73
Katepwa	961	10	231.31	272.53
	13 542	67	225.00	272.23
Feed wheat	847	79	196.33	123.07
Rye	325	2	149.63	103.12
Barley	835	86	167.46	109.09
Oats	792	20	178.05	125.03
Hulless oats	170	46	256.13	194.83
Corn	512	76	180.63	130.14
Canola	153	100	425.69	420.28
Soybeans	127	7	378.66	280.00
Totals	17 303	66		

TABLE 2
Grass & Mixed Haylage Analysis
N.S. Provincial Lab

Year	Sample #	% D.M.	% C.P.	% ADF	% TDN
1985	115	37.9	11.62	42.39	49.4
1986	120	37.4	15.37	37.93	56.7
1987	144	37.6	14.97	36.08	58.0
1988	101	37.6	15.98	36.92	57.0

TABLE 3
First Cut Hay Analysis (except Legume)
N.S. Provincial Lab

Year	Sample #	% Protein	% TDN
1983	76	9.75	48.5
1984	111	9.23	49.2
1985	158	7.86	46.9
1986	119	10.7	49.9
1987	123	11.5	52.0
1988	184	10.5	49.8

CORN

The planting date of corn ranged dramatically throughout the province, depending on local conditions. The earliest field was planted on April 28 (cold tolerance demonstration), and there were fields still being planted in the first week of June. The majority of fields were planted in the second and third weeks of May.

The cool weather at the end of May and early June had a pronounced effect on the early corn growth. Fields in all areas were yellow, and many were severely injured by frost in this period. In some cases, all three or four leaves were entirely killed, although, for the most part, the growing points were undamaged and the crop recovered.

By the middle of June, the corn started to green up and those fields that were severely frosted had new replacement leaves rapidly emerging from the growing point. The corn heat units, at this time, were well above the 30-year normal, although this is very misleading because the corn development was far behind normal. The heat was distributed unevenly with a couple of warm days followed by unusually cool weather. The corn didn't have a chance to utilize the heat since it was constantly recovering from poor conditions.

A month later, the corn in the central region of the province was 60-75 cm high, which is about 20 cm shorter than it was during this period in 1987. Crop Insurance reported that the corn was 30-45 cm shorter than it should have been in the Valley.

Many of the early hybrids tasselled by the first week of August and, generally, the corn was at the proper stage of growth for good maturity potential. The growth in July was phenomenal, and it was amazing to observe the crops' ability to recover from a slow start.

A severe storm on July 31 knocked the corn flat in the Milford area. Fortunately, there were few corn stalks broken and the soil was moist so that much of the roots stayed intact. After about 10 days, the corn was standing again, and from the road, it appeared to have recovered. However, upon closer examination, many stalks were found to be damaged and the severely affected fields really never amounted to much, although they were still worth harvesting for silage later on.

There was a large number of double cobs in 1988, which had a negative affect on grain yields. Generally, the corn yields were down from last year in the central region of the province and above normal in the Valley. The maturity was relatively good in most areas, although some of the earlier harvested high moisture ear corn (October 10) was considerably wetter than ideal.

The first killing frost (2°C) was on October 10 in Truro and October 16 in Kentville. Total corn heat units from May 1 was 2,663 in Truro, which was 8 per cent above last year. Kentville recorded 2,844 corn heat units before the first killing frost, which was 3 per cent less than last year.

There was continued interest in growing corn for high moisture ear corn as an alternative to either silage or dried shelled corn. Testimonials of dairy producers feeding high moisture ear corn have been very positive. Dried grain corn has become virtually non-existent in Nova Scotia because of the high cost of drying. Many farmers are having their corn custom harvested by a self-propelled forage harvester, equipped with a snapper head or a grain combine equipped with tracks to enable harvest on wet soil.

Generally, the harvesting of high moisture ear corn in 1988 was very difficult due to wet soil conditions. Virtually no harvesting took place between mid-October and mid-November, although the track combine was able to operate at this time. By the middle of November, there was sufficient frost in the ground to support the heavy equipment and the harvest was completed. Many growers suffered high field losses, although the standability of some hybrids was outstanding.

The 1988 corn crop consisted of 1 000 ha (2,500 a.) of grain corn and 2 100 ha (5,000 a.) of fodder corn as reported by Statistics Canada.

OTHER CROPS

Soybeans

The year 1988 will be remembered by those growing soybeans as an exceptional year. Crop Insurance reported average yields of 2 150 kg/ha (1,954 lb./a.), which is three times the yield they reported in 1987. Many growers reported yields in the range of 2 500 kg/ha (2,272 lb./a.), although some exceeded the 3 000 kg/ha (2,678 lb./a.) level.

Generally, the soybeans were seeded by the third week of May, and even though there were a few frosty nights in early June, they appeared to be relatively unaffected. There was adequate moisture for early growth and by late June, the crop was well under way. The high amount of rainfall and heat for the remainder of the summer contributed to phenomenal growth. In fact, the soybeans grew tall and, in some cases, lodging was a problem. Lowest pod height was the best it has been for years, therefore, reducing the potential for high field losses at harvest.

There were 127 t of soybeans submitted to the Nova Scotia Winter Grain Marketing Board for sale to the pool in 1988 as opposed to 20 t the previous year. The price of soybeans stabilized late in 1987, which undoubtedly affected the number of acres grown for sale. Even though no figures are available, it is believed that acreage increased substantially in 1988 and this increase will continue in 1989.

Much of the soybeans grown in Nova Scotia are for an "on-farm" protein source, and therefore, this is not reflected in the Nova Scotia Winter Grain Marketing Board information. However, with the success of the 1988 crop and the increased value of the soybeans, a considerable number of farms will likely experiment with growing some soybeans in 1989 for their own use.

Canola

The 118 ha (295 a.) of canola seeded in 1988 were the largest planting to have occurred in Nova Scotia, but unfortunately, the results show one of the lowest yields in the crop's six-year history in the province. The average yield was only 1 300 kg/ha (1,160 lb./a.).

The 1988 crop seemed to have trouble "getting out of the starting blocks" on many fields with poor seedling vigor, which perhaps can be attributed to a seed-borne disease. Problems continued for some growers with weed and sclerotinia white mold disease. The majority of these problem fields did not

have either a Treflan herbicide or Benlate fungicide treatment. However, it is difficult to use these treatments as part of a full input/management package that runs $600-$700/ha ($240-$280/a.) when the profit potential for the crop is usually considerably lower.

The future of canola production in Nova Scotia is still rather clouded due to inconsistent world prices and the lack of local processing facilities or market. However, a committed group of representatives from the Provincial Grain Commission and the Nova Scotia Winter Grain Marketing Board have done a thorough investigation into the potential of a small "pilot-type" mechanical press system, which would produce a reasonable grade of oil and a whole-seed protein cake. It is hoped that such a facility will become a reality so that this group can have an actual processed sample to negotiate with potential canola users in the livestock feed, edible oil, fossil fuel, and other industries.

While the local processing and marketing possibilities for canola are being studied, the current group of 10 to 12 farmers will continue to fine tune the appropriate production system for Nova Scotia during the 1989 growing season.

Tobacco

In 1987, there were 15 tobacco producers in Nova Scotia. Two opted to take the Tobacco Reduction Program (REDUX) in 1988. This left 13 producers who planted 196 ha (490 a.) of tobacco. From those 196 ha (490 a.), producers harvested 477 652 kg (1,050,835 lb.) with an average yield of 2 402 kg/ha (2,145 lb./a.) returning $2,091,162 to the economy (N.D. excluded).

Delgold is the variety grown by all growers. One grower opted to try 2 ha (5 a.) of H St. 80 K_2 (yellow) with excellent results. On farms where black root rot is a problem, it was hoped that this variety would be useful. Unfortunately, it is a variety that is not acceptable to the consumer: because of the taste, it is not saleable. Therefore, it has been dropped.

Tobacco companies organized growing-curing seminars, followed up by a grading seminar in July.

The growing season started out cool and ended up cold and wet. There were three crop insurance claims for damage due to excessive moisture and some crops with lower yields due to frost. No insurance claims were paid out. In spite of the damage, all crop yields were above the insured average.

The Nova Scotia Flue-Cured Tobacco Growers Marketing Board is presently negotiating an extension to the existing plan.

WEED SCIENCE SERVICES

Excellent snow cover gave good winter protection to winter cereals and berry crops. Perennial, biennial, and winter annual weeds also benefited from this protection. Some late fall herbicide treatments were missed due to early snow cover in November 1987.

Cold, snowy conditions continuing into late April prevented early land preparation and planting. The threat of a late spring was turned around completely in May with warmer and drier than normal conditions. This trend continued for the first three weeks of June resulting in overall excellent conditions for tillage, planting, and herbicide application. The final week of June brought the much-needed rain, which, in combination with our accumulated heat units, propelled us into an excellent growing season. July and August remained hot, yet hours of sunshine were down. Heavy rain in late July was sufficient to deplete some herbicide residues.

September was cooler, brighter, and drier than normal. These conditions, combined with our accumulated heat, was excellent for plant growth resulting in good performance from fall-applied herbicides. Perennial weeds remained susceptible to translocated herbicides because many areas did not experience severe frosts until well into October. Little snow accumulation in November allowed more opportunity for late season herbicide application than the previous fall.

Overall, weed control results were very good in 1988 with no major problems being caused by adverse weather. With warm, dry weather delayed until May and June, the tillage planting and herbicide application season was very intense, requiring careful planning and management of time. Under these conditions, some growers may not take time to apply incorporated herbicides. Planned pre-emergence treatments can be missed with the rapid emergency experienced, placing all hopes for weed control on properly timed post-emergence applications. There is little back-up to salvage the situation if this treatment fails.

Weed Control Act

This legislation has been active in controlling many of the concerning and detrimental weeds. The legislation is designed mainly to protect agricultural lands but also provides legislation whereby poisonous weeds are subject to strict control measures.

Being concerned over further spread of blueweed and wild chervil, the Antigonish and Colchester County Federations of Agriculture and their respective county councils, as well as the Nova Scotia Federation of Agriculture, recommended that these weeds be added to Class Number 1, Section 9, of the Regulations to the Weed Control Act.

Two weed inspector meetings were held this year, one during the last week of April and one in the fall when inspectors reported on their work for the year. During the spring meeting, inspectors were updated on regulations, safety, application techniques, weed identification, control methods, etc. Also, a tour was held in Kings County on July 6 and 7 at which time inspectors had the opportunity to observe other weed control techniques, different weeds, and agricultural operations.

The Lunenburg Municipal Council in a majority vote elected not to financially support the cost of a municipal weed inspector for 1988. Council of the Municipality of Inverness has appointed a new weed inspector to replace an earlier retirement.

Yellow netsedge is known to be a problem weed in many parts of the world, while efforts are being instigated in Nova Scotia to curtail any further spread. The plant has been further located on one farm in Kings County, and for the first time, there has been one infestation located in Hants West Municipality. Further survey of this weed will be encouraged and plans formulated to carry out more intensive control and prevention of spread.

A release site for the flea beetle *(Longitarsus jacobaea)* was located in the West River area. This agent furthers biological control of tansy ragwort and is planned to assist the cinnabar moth in a more complete control effort. A total of 2,000 insects were released, and further counts will be carried out in an effort to establish the insect population.

Milkweed has been spreading mainly along railways. Weed inspectors have been active in controlling this weed in many parts of the province. An agreement has been obtained with the Canadian National Railway whereby that organization will assist in controlling the weed, including associated costs.

A species of buckthorn *(Rhamnus frongula* L.*)* was located on a private property on Vimy Road, Truro. The bush was cut, removed, and the stump treated to prevent regrowth. Follow-up of this work will be continued for the next few years.

Ragweed continues to be a concerning weed in all parts of the province. An infestation was located in an unharvestable crop of canola. The entire area was mowed and later burnt with a blueberry burner to render the seed unviable. The property owner mowed the field (at his cost) while the Municipality of Colchester paid for the burning. Further survey and control work will be instigated during the coming year.

The appointment of a weed inspector for Halifax County is pending. Residents of the Sheet Harbour area are interested in initiating a tansy ragwort control program. This will be supervised by the newly appointed weed inspector who will provide guidance in control techniques.

LAND EVALUATION AND PLANNING SERVICE

Phase I

Phase I, the soil survey phase of the Land Evaluation and Planning Service (LEAPS), continued to operate at maximum capacity in 1988. A total of 11 farms, covering 2,100 ha (5,250 a.) of land in five counties, were surveyed during the 1988 field season. Eight new applicant farms were also interviewed and enrolled in the program. These eight farms, plus two carried from 1987, are scheduled to be surveyed during the 1989 field season.

During 1988 a project to automate, to a large extent, the generation of Phase I soils reports was initiated. Upon completion, this program will allow for faster production and, therefore, earlier delivery of high quality soil reports to LEAPS farmers. To date, delivery of soils reports has been hindered due to the labor-intensive nature of manual production methods. It is anticipated that the report generation program will be operational and that the existing backlog of soil reports will be completed by the end of 1989.

An update of the LEAPS computerized soil data base was also initiated in 1988. This update was necessitated by a change in data collection format and codes in 1987 and changes in field boundaries on farms surveyed prior to the 1988 field season. By the end of this project, all soils data from the LEAPS surveys will be contained in a single, standardized, computer file, updated to current field conditions. It will be essential that the data base be updated regularly to account for field boundaries changes if it is to be of any use. The proposed automation of the program, through the acquisition of a Geographic Information System, will greatly simplify the update process.

Phase II

This marked the first complete year that Phase II of the LEAPS program was in full production mode. January through June was spent finishing three years of backlogged recommendations to LEAPS farmers (i.e., those farmers surveyed in 1985, 1986, and 1987). During the fall of 1987, work commenced on developing and completing requested recommendations following 19 Phase II meetings with 1985 and 1986 LEAPS farmers. In February, 11 more Phase II meetings were held with those farmers surveyed in 1987. Delivery of completed recommendations started in February with the first report. Eighteen more reports were delivered in April, six in May, and five in June. In total, 30 fertilizer and lime recommendations, 26 drainage strategies, 10 deep tillage strategies, five land-clearing strategies, 16 dairy herd feed requirement calculations, 21 crop rotation plans, 14 pasture management plans, one field reorientation strategy, and one farm lane design were delivered. In addition, crop suitability ratings were developed prior to crop rotation planning as an inherent component of that recommendation and general sections on soil and manure management were provided. Recommendations were delivered both in a coordinated report with appendices of relevant government publications and in map format.

In the fall of 1988, 11 Phase II meetings were held with those farmers surveyed in 1988. Following these meetings, fertilizer and lime recommendations were given to all LEAPS farmers enrolled in the program (the last of these recommendations were delivered in February of 1989).

Cartographic Laboratory

During 1988, the cartographic laboratory produced 34 soils maps for farms surveyed during the year. As well, 1985 maps were revised to a standardized map format.

Air photo mosaics were prepared for the 11 farms surveyed in 1988 and for 3 farms carried over from 1987. In addition, many of the mosaics delivered in 1985 and 1986 were collected and repaired and/or converted to the new more durable format.

A new format of line maps was developed for LEAPS farmers and the process of converting the backlog to this format was begun. It is anticipated that all farms on the program will receive the new format line maps by the spring of 1990.

NOVA SCOTIA SOILS INSTITUTE

The Nova Scotia Soils Institute was very active in 1988, meeting twice to discuss a number of topics, some of which are outlined below.

Soil Research Strategies

A request was received from the Agri-Food Development Agreement implementation committees for updates of research strategies developed by the Institute in 1986. To accomplish this objective, the committees of the Institute were reactivated with broader membership to revise the strategies based on the activities over the past three years. It is anticipated that revised soil research strategies will be released by the Institute in the spring of 1988.

Internalization of the LEAPS Farm Survey Report

The LEAPS project, which, from its inception has been administered by the Institute, became a program under the auspices of the Soils and Crops Branch within the Department of Agriculture and Marketing in 1988. The internalization is anticipated to enhance the continuity of funding for LEAPS, which will encourage future growth and development.

National Soil Conservation Program

In 1988, the Institute provided provincial expertise on issues pertaining to the National Soil Conservation Program. This input included the review of a proposal aimed at the establishment of a Soil Conservation Centre at Grand Falls, New Brunswick.

Review of Project Proposals

There were a number of project proposals submitted to the Institute for endorsement. The Institute continued its support of a drainage project, which was initiated in 1987. As well, Institute members reviewed and endorsed a study of the effects of rolling on soil compaction and blueberry yields. Work will continue on these projects in 1989. In addition, work will commence in 1989 on an approved project to develop a soil test calibration strategy for the Nova Scotia Department of Agriculture and Marketing.

The Institute will continue to review and evaluate proposed projects in order to determine their relevance to research strategies and will provide technical and management support for projects requested in 1989.

PROVINCIAL LABORATORY SERVICES

The following tables provide statistical summaries of samples analyzed in the Chemistry Laboratory (Table 4), Soil Physics Laboratory (Table 5), Livestock Feed Laboratory, and the Atlantic Provinces Pesticide Residue Laboratory (Table 6).

One new policy that has had an impact on sample receipts in some categories was the introduction of fee-for-service to other government departments and other agricultural divisions for samples analyzed in support of research.

This policy may seem to have had little impact on livestock feed sample receipts on first inspection since, for the second year in a row, the number has surpassed 10,000. However, the number of samples analyzed in support of research projects declined by 1,571 samples. Samples from primary producers increased by 1,257 or 17.6 per cent.

Foliar tissue samples from the horticultural and floricultural industry declined slightly during 1988. There was a significant decline in samples from research projects (47 per cent).

Greenhouse soil samples remained at normal levels. However, samples from the Nova Scotia Department of Lands and Forests greenhouses declined by 1,141 samples (57 per cent).

Water samples declined by 13 per cent with a 39 per cent decrease in sample receipts from the Nova Scotia Department of Transportation and Communications.

We would conclude that this policy has been a highly successful one in that it has encouraged some users of the service to evaluate their analytical requirements more critically. The resulting revenue allowed the laboratory to employ a casual for six months. This resulted in improved service not only to other government departments, but also to the agricultural industry in general, with improvements in response time ranging from 6 per cent (greenhouse soil) to 46 per cent (soil).

The Soil Physics Laboratory experienced a very significant increase during 1988. Total analyses increased by 75 per cent over the previous year. Eighty per cent of analyses were conducted in support of the Land Evaluation and Planning Service. The remainder consisted primarily of samples from a soil compaction study being conducted by the Nova Scotia Blueberry Institute.

Samples received at the Atlantic Provinces Pesticide Residue Laboratory increased from 300 in 1987 to 387 in 1988 (Table 6).

Samples from the four Atlantic provinces remained much the same, in total, as the previous year, although samples from individual provinces changed significantly in some cases.

Samples from other Nova Scotia government departments increased from 38 in 1987 to 119 in 1988 (200 per cent increase).

TABLE 4:
Five-Year Laboratory Sample Summary

Material	1984	1985	1986	1987	1988	% Change
Soils						
Field	13,785	13,090	12,331	13,096	11,996	
Greenhouse	2,413	2,415	2,734	2,938	1,951	
Total	16,198	15,505	15,065	16,034	13,947	-13%
Feed						
Forage	2,844	3,840	4,386	5,968	6,529	
Cereal	1,282	715	1,085	1,596	675	
Milled Feed	2,054	1,961	2,047	1,881	2,056	
Other	1,355	933	925	1,039	1,054	
Total	7,535	7,449	8,443	10,484	10,314	-1.6%
Tissue						
Commercial	1,641	2,130	2,343	2,850	2,491	
Research	456	1,110	1,614	1,045	555	
Total	2,097	3,240	3,957	3,895	3,046	-22%
Water	1,228	1,372	2,298	3,199	2,783	-13%
Misc.	163	193	175	951	321	
Total	27,221	27,759	29,938	34,563	30,273	-12%

TABLE 5:
Soil Physics Lab

	1987	1988			
		LEAPS	Other	Total	% Change
Particle size	523	717	117	834	
pH	1,046	1,434	40	1,474	
Bulk density	224	343	318	661	
Hydraulic conductivity	224	343	69	412	
Organic carbon	152	196	55	251	
Cation exchange capacity	28	43	42	85	
Moisture retention	161	234	107	341	
Moisture			64	64	
Total	2,358	3,310	812	4,122	+74.8%

TABLE 6:
APPRL Pesticide Analysis
January 1 – December 31, 1988

	NB	NS	PEI	NF	NS Depts	Other	Check Samples	Total
Soil	10	21	9	2	7	6	6	61
Water		3	2		102	18	7	132
Plant Material	35	24	44	1		6		110
Milk	8							8
Vomitoxin	9	49	3		6	1	1	69
Other			2		3			5
Formulations		1			1			2
Total	62	98	60	3	119	31	14	387

SOIL AND CROP IMPROVEMENT ASSOCIATIONS

The 12 various soil and crop improvement associations were again very active in 1988. County association directors (representing approximately 650 members) work closely with soil and crop specialists and agricultural representatives to encourage the improvement of yields and quality in all livestock feed and fodder crops. Some of the various highlights of the 1988 soil and crop improvement associations programs were:

- 49 on-farm crop demonstration trials
- crop yield/quality competitions
- soils and crops tours
- hiring of a contract soil and crop specialist for Cape Breton
- special projects

FERTILIZER ASSISTANCE POLICY

The Fertilizer Assistance Policy was in full operation in 1988. A total of 2,075 applications were processed and $1,613,697.99 in assistance was paid out. This is the most ever paid out under this policy.

Table 7 shows the breakdown of claims on a county basis. The average claim size has been increasing annually as numbers of claims are remaining about the same.

A total of 76 353 ha (190,882 a.) is indicated as having been fertilized during 1988. This represents about 50 per cent of what statistics would show as being "improved farm land" in Nova Scotia. The rest apparently does not get fertilized on a regular basis. Forage crops represent almost 78 per cent of the indicated hectares fertilized.

TABLE 7:
Fertilizer Assistance Policy — 1988

County	No. of Applications	Average Application	Total Expenditure
Annapolis	128	$606.93	$77,867.50
Antigonish	139	935.70	130,063.54
Cape Breton	64	737.04	47,170.43
Colchester	259	856.70	221,885.13
Cumberland	182	788.48	143,503.99
Digby	18	263.69	4,746.47
Guysborough	27	339.67	9,171.22
Halifax	70	883.32	61,823.69
Hants	168	680.42	114,310.22
Hants East	97	1,074.69	104,245.14
Inverness	83	784.95	65,150.86
Kings	406	1,003.61	407,464.45
Lunenburg	145	408.44	59,223.98
Pictou	209	613.40	128,199.98
Queens	11	281.97	3,101.73
Richmond	6	222.64	1,335.81
Shelburne	3	179.46	538.37
Victoria	14	635.02	8,890.29
Yarmouth	46	543.40	24,996.19
Province	2075	$777.70	$1,613,688.99
1987–88	2079	$725.20	$1,507,681.94
1986–87	2075	$698.15	$1,448,659.61
1985–86	2251	$695.09	$1,564,666.79
1984–85	2387	$660.83	$1,575,398.26
1983–84	2430	$655.17	$1,592,070.65
1982–83	2481	$638.30	$1,583,628.30
1981–82	2471	$603.69	$1,499,952.27